

NATIONAL RECOVERY ADMINISTRATION

DIVISION OF REVIEW

EVIDENCE STUDY

NO. 20

OF

THE IRON AND STEEL INDUSTRY

Prepared by

A. G. WHITE

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PRELIMINARY DRAFT

(NOT FOR RELEASE: FOR USE IN DIVISION ONLY)

THE EVIDENCE STUDY SERIES

The EVIDENCE STUDIES were originally planned as a means of gathering evidence bearing upon various legal issues which arose under the National Industrial Recovery Act.

These studies have value quite aside from the use for which they were originally intended. Accordingly, they are now made available for confidential use within the Division of Review, and for inclusion in Code Histories.

The full list of the Evidence Studies is as follows:

- | | |
|-------------------------------------|---|
| 1. Automobile Manufacturing Ind. | 23. Mason Contractors Industry |
| 2. Boot and Shoe Mfg. Ind. | 24. Men's Clothing Industry |
| 3. Bottled Soft Drink Ind. | 25. Motion Picture Industry |
| 4. Builders' Supplies Ind. | 26. Motor Bus Mfg. Industry (Dropped) |
| 5. Chemical Mfg. Ind. | 27. Needlework Ind. of Puerto Rico |
| 6. Cigar Mfg. Industry | 28. Painting & Paperhanging & Decorating |
| 7. Construction Industry | 29. Photo Engraving Industry |
| 8. Cotton Garment Industry | 30. Plumbing Contracting Industry |
| 9. Dress Mfg. Ind. | 31. Retail Food (See No. 42) |
| 10. Electrical Contracting Ind. | 32. Retail Lumber Industry |
| 11. Electrical Mfg. Ind. | 33. Retail Solid Fuel (Dropped) |
| 12. Fab. Metal Prod. Mfg., etc. | 34. Retail Trade Industry |
| 13. Fishery Industry | 35. Rubber Mfg. Ind. |
| 14. Furniture Mfg. Ind. | 36. Rubber Tire Mfg. Ind. |
| 15. General Contractors Ind. | 37. Silk Textile Ind. |
| 16. Graphic Arts Ind. | 38. Structural Clay Products Ind. |
| 17. Gray Iron Foundry Ind. | 39. Throwing Industry |
| 18. Hosiery Ind. | 40. Trucking Industry |
| 19. Infant's & Children's Wear Ind. | 41. Waste Materials Ind. |
| 20. Iron and Steel Ind. | 42. Wholesale & Retail Food Ind. (See No. 31) |
| 21. Leather | 43. Wholesale Fresh Fruit & Veg. |
| 22. Lumber & Timber Prod. Ind. | |

In addition to the studies brought to completion, certain materials have been assembled for other industries. These MATERIALS are included in the series and are also made available for confidential use within the Division of Review and for inclusion in Code Histories, as follows:

- | | |
|------------------------------------|---|
| 44. Wool Textile Industry | 49. Household Goods & Storage, etc. (Dropped) |
| 45. Automotive Parts & Equip. Ind. | 50. Motor Vehicle Retailing Trade Ind. |
| 46. Baking Industry | 51. Retail Tire & Battery Trade Ind. |
| 47. Canning Industry | 52. Ship & Boat Bldg. & Repairing Ind. |
| 48. Coat and Suit Ind. | 53. Wholesaling or Distributing Trade |

L. C. Marshall
Director, Division of Review

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THE IRON AND STEEL INDUSTRY

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I. THE NATURE OF THE INDUSTRY

1 - 2. Number of plants and members of Industry.

The best source of information is the Iron and Steel Directory prepared by the American Iron and Steel Institute and the lists of signatory members and non-signatory members of industry compiled by the Code Authority. The last published directory is for 1930 but tabulations were made by Research and Planning Division from the proof of the 1935 directory, which is about ready for publication.

The 1935 directory includes about 305 companies who operated 488 plants or works. The secretary of the institute submitted a list of 46 companies which had been dropped from the directory list since 1930, practically all of which were small companies operating one plant.

Based on this data, there were approximately 351 companies operating 534 plants in 1930 and 305 companies operating 488 plants in 1934.

The latest list (April 26, 1935) of signatory members submitted by the Code Authority shows a total of 241 companies (counting all subsidiary companies shown under separate names). The list of members of industry, submitted by the Code Authority, believed to be eligible but who had not signed the Code included 58 names. Combined the two lists total 299 companies. This total is in substantial agreement with the number of companies indicated by the 1935 directory.

IRON AND STEEL INDUSTRY

Companies classified according to voting strength and volume of sales 1934. (1 vote for each \$0.5 million sales - fractions not counted - each member at least 1 vote)

	<u>Number of Companies</u>	<u>Total Votes</u>	<u>Sales Value Million Dollars</u>
Companies with 1 vote	106	106	\$53.0
" " 2 votes	20	40	20.0
" " 3 votes	9	27	13.5
" " 4 votes	13	52	26.0
" " 5 votes	8	40	20.0
" " 6 votes	9	54	27.0
" " 7 votes	3	21	10.5
" " 8 votes	4	32	16.0
" " 9 votes	2	18	9.0
" " 10 to 20 votes	9	116	58.0
" " 20 to 30 votes	6	144	72.0
" " over 30 votes	13	1,646	823.0
Total	202	2,296	\$1,148.0

Note: The above represent the members of industry under the Code, The 202 companies represent controlling companies which, together with their subsidiary companies, represent a total of 241 company names. In addition there are 58 companies, listed as non-signers of the Code for which no data on sales is available.

Source: Company lists furnished by the Code Authority.

IRON AND STEEL INDUSTRY

POSITION OF THE 16 LARGEST MEMBERS OF INDUSTRY 1934

Company	Code Votes	Sales Million Dollars	Capacity Million Tons		Number of Dif- ferent States in Which Are Plants	Sales Offices
			Pig	Ingot		
1. U.S. Steel Corporation	575	287.5	21.3	27.3	13	a/
2. Bethlehem Steel Corpora- tion	180	90.0	5.6	9.7	3	17
3. Republic Steel Corpora- tion	166	83.0	2.4	5.0	6	17
4. National Steel Corpora- tion	143	71.5	2.0	2.2	3	10
5. Youngstown Sheet and Tube Company	92	46.0	3.0	3.1	3	17
6. Jones and Laughlin Steel Corporation	78	39.0	3.0	3.7	1	15
7. American Rolling Mill Company	78	39.0	0.7	2.2	3	11
8. Inland Steel Company	76	38.0	1.0	2.0	2	5
9. Wheeling Steel Corporation	74	37.0	1.0	1.5	2	19
10. Crucible Steel Company of America	55	27.5	0.5	1.5	3	21
11. Continental Can Company, Incorporated	51	25.5	-	-	2	-
12. Corrigan McKinney Steel Company	45	22.5	1.2	1.0	2	1
13. Otis Steel Company	33	16.5	0.4	1.0	1	9
14. Spang, Chalfont and Com- pany, Incorporated	29	14.5	-	-	1	8
15. Allegheny Steel Company	26	13.0	-	0.3	1	6
16. Wisconsin Steel Company	25	12.5	0.5	0.6	-	-
Total 16 Companies	1,726	863.0	42.6	61.1		
Total all Members	2,296	1,148.0	49.0	68.9		
Per cent of 16 Companies	77.2%	75.2%	86.9%	88.7%		

Source: Lists of Code Authority and 1935 Directory of American Iron and Steel Institute.

a/ The ten subsidiary companies have offices in from 4 to 18 different states.

IRON AND STEEL INDUSTRY

POSITION OF THE UNITED STATES STEEL CORPORATION
PER CENT OF TOTAL UNITED STATES PRODUCTION

	1929	1930	1931	1932	1933	1934
Production of Iron Ore	41.6	41.3	43.5	36.3		
Production of Coke	29.0	27.2	21.0	13.5		
Production of Pig Iron	39.0	40.6	32.6	35.9		
Production of Ferr-Alloys	22.1	24.5	19.3	12.8		
Steel Ingots and Castings	33.8	41.2	38.9	36.0		
Rolled Products	35.4	36.6	34.2	29.6		
Steel Rails	50.6	51.2	52.0	46.9		
Structural Shapes	41.8	44.6	45.4	43.9		
Plates and Sheets	36.4	33.1	32.4	28.2		
Wire Rods	45.7	46.1	45.3	44.2		
Other finished Rolled Products	28.9	29.5	27.6	22.4		
Wire Nails	39.0	44.6	43.4	42.4		
Tin and Terne Plate	33.8	37.5	32.4	30.4		

IRON AND STEEL

Active Steel Works and Rolling Mills

Number of Establishments by States

	<u>1929</u>	<u>1931</u>	<u>1933</u>
Maine	1	1	<u>a/</u>
Massachusetts	9	9	<u>a/</u>
Connecticut	3	3	<u>a/</u>
Rhode Island	1	1	<u>a/</u>
New York	26	24	22
New Jersey	17	12	10
Pennsylvania	158	146	131
Delaware	3	3	<u>a/</u>
Maryland	4	4	<u>a/</u>
Virginia	2	2	<u>a/</u>
West Virginia	16	14	13
Kentucky	4	4	<u>a/</u>
Ohio	88	74	62
Indiana	20	18	17
Illinois	36	37	32
Michigan	14	16	15
Wisconsin	17	15	12
Minnesota	5	4	<u>a/</u>
Alabama	9	8	<u>a/</u>
Georgia	1	2	<u>a/</u>
Tennessee	2	2	<u>a/</u>
Louisiana	3	1	<u>a/</u>
Texas	2	2	<u>a/</u>
Iowa	2	3	<u>a/</u>
Missouri	7	8	7
Nebraska	1	-	<u>a/</u>
Oklahoma	2	2	<u>a/</u>
Colorado	3	3	<u>a/</u>
Utah	2	1	<u>a/</u>
California	19	19	17
Oregon	3	3	3
Washington	6	5	<u>a/</u>
TOTAL	486	446	394

Source: U. S. Census of Manufactures, 1929, 1931, 1933.

a/ Details not available.

IRON AND STEELI - 4. Capital Investment

Capital investment, computed on the basis of net property value, investments, net assets and inventories, was approximately \$5.0 billion at the end of 1932 and between \$4.7 and \$4.8 billion at the end of 1934. These figures are compilations by the American Iron and Steel Institute for 190 companies and include some affiliated operations which are not properly chargeable to iron and steel. However, since many smaller companies are not included, the total as here given may be considered as a fair approximation, which is currently accepted.

IRON AND STEEL INDUSTRY

I. 5 - Failures and Liabilities Involved.

No exact data is available.

W. S. Tower, Secretary of the Code Authority, stated that the volume of failures had been relatively small and would have been much greater except for the stabilizing influence of the Code. He submitted a detailed statement for 46 companies whose names had been dropped from the Iron and Steel Institute Directory between 1930 and 1935. These companies represented a total capacity of about 2.1 million tons of pig iron capacity, 0.4 million of ingot capacity and 1.5 million of finished steel capacity. Only about one-third of these companies had operated since 1929. About 90 per cent of the pig capacity, 59 per cent of the ingot capacity and 40 per cent of the finished capacity did not operate even in 1929. Consequently a large part of the abandoned and dismantled capacity may be considered as obsolete.

Dunn and Bradstreet report the following with regard to failures under the classification of "Iron, Steel and Foundries."

<u>Year</u>	<u>Number of Failures</u>	<u>Liabilities</u>
1929	148	\$6.2 million
1930	103	3.0 "
1931	181	19.8 "
1932	286	19.9 "
1933	250	11.3 "
1934	139	5.7 "

A very large part of these failures undoubtedly come under foundries or other operations not under the scope of the Iron and Steel Code. Even then it is notable that the total liabilities for the six years are only about \$66 million whereas the capitalization in the Industry is close to \$5 billion.

IRON AND STEEL INDUSTRY

Principal Products And Consuming Industries

Rails and track accessories are heavy finished products of the rolling mills and the major demand is by the railroads with smaller demands for mining and industrial concerns and some export. Demand is primarily affected by replacements and the curtailment of railroad transportation by water and motor vehicle competition.

Plates, a heavy product of the rolling mills, are used in the building industries, for railroad cars and locomotives, for storage tanks and other purposes, in oil, gas and water company operations, in steel ship building, in the manufacture of heavy containers and for many other purposes.

Black plate for tinning is a rolling mill product which is subjected to further processing to make the final product of tin plate for containers either for food products or industrial products such as lubricating oils.

Sheets, either plain or galvanized, are one of the important rolling mill products. The largest use of sheets is in automobile manufacture. The building industries are the next largest consumer, using both plain and galvanized (zinc coated) sheets.

Structural shapes are mainly used in the building industry, for railroad cars and locomotives and for bridge construction.

Concrete bars are primarily used for reinforcing cement work in building and highway construction.

Merchant bars find a major use in automotive manufacture, in the production of agricultural machinery and in many other lines of machinery and equipment production.

Strips find their major use in automotive manufacture and a wide range of lesser uses.

Pipe and tubing finds its largest use in oil, gas and water company operations and in large sales, through jobbers, for miscellaneous purposes. Skelp and tube rounds represent the semi-finished forms from which the final forms are processed.

Wire rods represent the semi-finished form from which wire is drawn to form the basis of numerous wire products, such as nails, fencing, etc.

Alloy steels find their largest in automobile parts.

PRODUCTION OF FINISHED STEEL BY MAJOR PRODUCTS
(For 46 Companies Producing 88 Per Cent of 1934 Output)

A. Production of Finished Steel in Millions of Gross Tons

Products	1929	1930	1931	1932	1933	1934
Rails	2.72	1.87	1.16	0.40	0.42	0.98
Plates	5.72	3.66	1.97	0.83	1.16	1.38
Black Plate for						
Tinning	1.70	1.69	1.43	1.00	1.96	1.65
Other Sheets	5.72	3.71	2.64	1.61	3.08	3.68
Strips	2.50	1.94	1.62	1.19	1.93	2.45
Wire Rods	3.13	2.35	1.84	1.19	2.02	1.70
Shapes	4.78	3.51	2.06	0.94	1.11	1.33
Bars, Merchant	6.31	4.04	2.39	1.29	2.25	2.63
Bars, Concrete	0.95	0.85	0.64	0.38	0.37	0.42
Pipe, Skelp and						
Tube Rounds	4.80	3.82	2.16	0.95	1.55	1.60
Hoops, Bands, Cotton						
Ties	0.59	0.13	0.11	0.08	a/	a/
Track Accessories	0.89	0.59	0.39	0.15	0.20	0.40
Other Finished						
Products	<u>1.53</u>	<u>1.03</u>	<u>0.57</u>	<u>0.35</u>	<u>0.56</u>	<u>0.80</u>
Total Shown	40.63	29.20	18.99	10.35	16.61	19.00

B. Production in Percentages of Above Totals

Products	1929	1930	1931	1932	1933	1934
Rails	6.7	6.4	6.1	3.9	2.5	5.1
Plates	12.4	12.6	10.4	8.2	7.0	7.3
Black Plate for						
Tinning	4.2	5.8	7.5	9.7	11.8	8.7
Other Sheets	14.1	12.8	13.9	15.6	18.6	19.4
Strips	6.2	6.7	8.5	11.4	11.6	12.9
Wire Rods	7.7	8.0	9.7	11.4	12.2	8.9
Shapes	11.8	12.0	10.9	9.0	6.7	7.0
Bars, Merchant	15.5	13.8	12.6	12.4	13.5	13.8
Bars, Concrete	2.3	2.9	3.4	3.7	2.2	2.2
Pipe, Skelp and Tube						
Rounds	11.7	13.1	11.4	9.3	9.3	8.4
Hoops, Bands, Cotton						
Ties	1.4	0.4	0.6	0.8	a/	a/
Track Accessories	2.2	2.0	2.0	1.4	1.2	2.1
Other Finished						
Products	<u>3.8</u>	<u>3.5</u>	<u>3.0</u>	<u>3.4</u>	<u>3.4</u>	<u>4.2</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Annual Survey by Iron Age (January 3, 1935)

a/ Included in Strips

DISTRIBUTION OF FINISHED STEEL BY CONSUMING GROUPS
(For 46 Companies Producing 88 per cent of 1934 Output)

A. Distribution of Finished Steel in Millions of Gross Tons

Consuming Groups	1929	1930	1931	1932	1933	1934
Buildings	6.70	5.50	3.50	1.65	1.90	2.55
Railroads	6.90	4.40	2.55	1.25	1.50	2.05
Automotive	7.30	4.50	3.05	1.75	3.15	4.00
Oil, Gas, Mining	4.30	3.35	2.10	0.90	1.00	1.35
Metal Containers	2.00	1.75	1.70	1.20	2.25	1.90
Agriculture	2.25	1.15	0.85	0.75	0.65	1.40
Shipbuilding	a/	a/	a/	0.10	0.17	0.30
Machinery	1.20	0.90	0.60	0.30	0.50	0.92
Highways	a/	a/	a/	0.40	0.75	0.75
Miscellaneous	<u>7.70</u>	<u>6.00</u>	<u>3.90</u>	<u>2.10</u>	<u>4.18</u>	<u>2.94</u>
Total Domestic	38.35	27.55	18.25	10.00	16.05	18.16
Exports	<u>2.25</u>	<u>1.60</u>	<u>0.75</u>	<u>0.30</u>	<u>0.55</u>	<u>0.84</u>
Grand Total	40.60	29.15	19.00	10.30	16.60	19.00

B. Distribution in Percentages of Above Totals

Consuming Groups	1929	1930	1931	1932	1933	1934
Buildings	16.5	19.0	18.5	16.0	11.5	13.4
Railroads	17.0	15.0	13.5	12.0	9.0	10.7
Automotive	18.0	15.5	16.0	17.0	19.0	21.0
Oil, Gas, Mining	10.5	11.5	11.0	8.5	6.0	7.1
Metal Containers	5.0	6.0	9.0	11.5	13.5	10.0
Agriculture	5.5	4.0	4.5	3.5	4.0	7.5
Shipbuilding	a/	a/	a/	1.0	1.0	1.6
Machinery	3.0	3.0	3.0	3.0	3.0	4.9
Highways	a/	a/	a/	4.0	4.5	4.0
Miscellaneous	<u>19.0</u>	<u>20.5</u>	<u>20.5</u>	<u>20.5</u>	<u>25.0</u>	<u>15.4</u>
Total Domestic	94.5	94.5	96.0	97.0	96.5	95.6
Exports	<u>5.5</u>	<u>5.5</u>	<u>4.0</u>	<u>3.0</u>	<u>3.5</u>	<u>4.4</u>
Grand Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Annual Survey by Iron Age (January 3, 1935)

a/ Included in miscellaneous

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IRON AND STEEL INDUSTRY PRODUCTION

V-A Total Monthly Production of Steel Ingots (000 gross tons) a/

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
JAN	4,132	3,823	4,026	4,545	5,808	2,534	1,500	1,017	1,971	2,824
FEB	3,785	3,845	4,061	4,372	4,067	2,570	1,496	1,073	2,163	2,742
MAR	4,469	4,575	4,549	5,178	4,268	3,083	1,448	898	2,761	
APR	4,106	4,163	4,34	4,999	4,142	2,794	1,273	1,345	2,898	
MAY	3,928	4,083	4,246	5,339	4,014	2,574	1,137	1,976	3,353	
JUN	3,734	3,526	3,778	4,951	3,445	2,149	923	2,564	3,016	
JUL	3,635	3,23	3,841	4,898	2,945	1,907	85	3,168	1,473	
AUG	3,967	3,529	4,217	4,938	3,085	1,733	856	2,864	1,363	
SEP	3,913	3,296	4,166	4,573	2,863	1,560	1,003	2,283	1,252	
OCT	4,074	3,345	4,693	4,59	2,714	1,605	1,099	2,085	1,462	
NOV	3,706	3,155	4,306	3,55	2,230	1,607	1,043	1,521	1,589	
DEC	3,467	3,203	4,055	2,912	1,995	1,313	871	1,799	1,941	
Average	3,911	3,648	4,194	4,571	3,300	2,119	1,122	1,883	2,105	

V-B Index of Steel Ingot Production (1929=100) b/

JAN	90.4	83.6	88.1	99.4	83.3	55.4	32.8	22.2	43.1	62.0
FEB	82.8	84.1	89.3	95.6	89.0	56.2	32.7	23.5	47.8	60.0
MAR	97.8	100.1	99.5	112.0	93.8	67.4	31.7	19.6	60.4	
APR	89.8	91.1	95.1	109.4	90.6	61.1	27.8	29.4	63.4	
MAY	85.9	89.3	92.9	116.8	87.8	56.3	24.9	43.2	73.4	
JUN	81.7	77.1	82.7	108.3	75.4	47.0	20.2	56.1	66.0	
JUL	79.5	70.7	84.0	107.2	64.4	41.7	17.8	69.3	32.2	
AUG	87.2	77.2	92.3	109.1	67.5	37.9	18.7	62.7	29.8	
SEP	85.6	77.2	91.6	100.0	62.6	34.1	21.9	49.9	27.4	
OCT	89.1	73.2	102.7	100.2	59.4	35.1	24.0	45.6	32.0	
NOV	81.1	63.0	94.2	77.8	46.8	35.2	22.8	33.3	34.8	
DEC	75.0	70.1	86.7	64.2	43.6	28.7	19.1	39.4	42.5	
Average	85.6	79.8	91.8	100.0	72.2	46.3	24.5	41.2	46.1	

JAN										
FEB										
MAR										
APR										
MAY										
JUN										
JUL										
AUG										
SEP										
OCT										
NOV										
DEC										

a/ Iron Age.

b/ Total Monthly Production shifted to 1929 base (4,571,000 gr.tons =100)

IRON AND STEEL INDUSTRY

II. Labor Statistics

	1929	1930	1931	1932	1933	1934
1. Estimated Average Number Employed - Thousands	421	368	279	228	290	354
2. Total Annual Wages - Millions of Dollars	733	587	359	183	270	378
3. Average Hourly Wage Rate - Cents	65.0	65.0	63.0	52.1	52.3	63.2
4. Average Hours Worked Per Week Per Employee - Hours	49.5	48.3	35.0	25.9	31.8	30.4
5. Average Weeks Worked Per Year Per Em- ployee	(Fairly continuous in 1929 but no later comparable figures available due to spreading work and decline in amount of work available).					
6. Number of Employees Under 16 years of Age	(A relatively negligible factor as occupation Census for 1930 shows only 110 children under 16 years of age as employed in blast furnaces and steel rolling mills).					

Source: Computations made by Research and Planning Division based on Bureau of Labor Statistics Index for Blast Furnace, Steel Works and Rolling Mills, National Industrial Conference Board's statistics, and adjustments to Census reports.

IRON AND STEEL INDUSTRY
NUMBER OF WAGE EARNERS EMPLOYED, BY STATES - 1929, 1931 and 1933

	Blast Furnaces	1929 Steel Works Rolling Mills	Total	Blast Furnaces	1931 Steel Works Rolling Mills	Total	Blast Furnaces	1933 Steel Works Rolling Mills	Total
Total	24,960	394,574	419,534	13,572	264,634	278,206	12,098	276,847	288,945
Alabama	2,398	9,253	11,651	1,468	c/	1,468 a/	964		964 a/
Illinois	2,547	30,416	32,963	1,531	19,079	20,610		17,005	17,005 b/
Indiana	1,574	29,169	30,743	875	18,641	19,516	574	22,379	22,953
Michigan	857	4,724	5,581		5,249	5,249		5,555	5,555 b/
New York	1,557	17,952	19,509	667	10,175	10,842	829	10,266	11,095
Ohio	5,880	89,123	95,003	3,273	58,088	61,361	3,627	64,286	67,913
Pennsylvania	8,186	145,684	153,870	4,145	98,332	102,477	4,172	101,534	105,706
Tennessee	450	c/	450 a/		c/				
Iowa		c/			120	120			
California		6,616	6,616		4,510	4,510		4,289	4,289 b/
Kentucky	c/	5,358	5,358 b/	c/	3,459	3,459 b/			
Louisiana		282	282		c/				
Missouri		3,406	3,406		2,336	2,336		1,979	1,979 b/
New Jersey		8,056	8,056		5,499	5,499		4,953	4,953 b/
Oregon		250	250		175	175		179	179 b/
Washington		724	724		c/				
West Virginia	c/	12,936	12,936 b/	c/	9,830	9,830 b/		13,365	13,365 b/
Wisconsin		5,248	5,248		3,052	3,052		2,133	2,133 b/
Other States	1,511	25,377	26,888	1,613	26,089	27,702	1,932	28,924	30,856

a/ Blast Furnace classification only.

b/ Steel Works and Rolling Mill classification only.

c/ Included in other states.

Source: U. S. Census of Manufactures. Data for "Blast Furnace" and "Steel Works and Rolling Mills" classifications combined.

IRON AND STEEL INDUSTRY
TOTAL WAGES BY STATES - 1929 - 1931 and 1933

	Blast Furnaces	1929 Steel Works Rolling Mills	Total	Blast Furnaces	1931 Steel Works Rolling Mills	Total	Blast Furnaces	1933 Steel Works Rolling Mills	Total
Total	41,958,569	689,015,541	730,974,110	19,258,799	338,386,533	357,645,332	11,564,000	258,803,000	270,367,000
Alabama	2,897,066	12,199,977	15,097,043	1,480,871	1,480,871	1,480,871	705,641	705,641	705,641
Illinois	4,224,127	55,359,031	59,583,158	2,386,833	23,678,934	26,065,767		17,747,801	17,747,801
Indiana	2,609,147	52,844,790	55,453,937	1,453,660	28,343,905	29,797,565	880,533	25,234,026	26,114,559
Michigan	1,502,103	9,111,336	10,613,439	1/	7,883,360	7,883,360		7,084,923	7,084,923
New York	2,776,543	30,137,035	32,913,578	1,141,815	14,145,060	15,286,875	830,730	10,010,950	10,841,680
Missouri		5,149,556	5,149,556		2,731,380	2,731,380		1,877,497	1,877,497
Ohio	11,143,535	167,200,199	178,343,734	4,753,704	74,593,573	79,347,277	3,566,732	61,683,924	65,250,656
Pennsylvania	13,918,094	248,618,590	262,536,684	5,668,430	122,100,471	127,768,901	3,595,396	85,203,207	88,798,603
Tennessee	338,412	1/	338,412	1/	1/	1/			
Iowa		1/	1/		129,607	129,607			
Louisiana		408,236	408,236		1/				
California		10,837,585	10,837,585		5,085,857	5,085,857		4,623,545	4,623,545
Washington		1,364,842	1,364,842		1/				
West Virginia	1/	23,773,982	23,773,982	1/	14,542,263	14,542,263		12,948,107	12,948,107
Wisconsin		9,428,007	9,428,007		3,303,170	3,303,170		1,657,055	1,657,055
Kentucky	1/	8,822,487	8,822,487	1/	3,635,832	3,635,832			
New Jersey		12,739,751	12,739,751		6,746,421	6,746,421		4,383,117	4,383,117
Oregon		375,377	375,377		201,884	201,884		212,441	212,441
Other States	2,549,542	40,644,760	43,194,302	2,373,486	31,264,816	33,638,302	1,984,968	26,136,407	28,121,375

Source: U. S. Census of Manufactures

1/ Included in other states

II - 9. According to figures of the 1929 Census of Manufactures, wages paid in blast furnaces represented 26 per cent of the value added by manufacture and in steel works and rolling mills wages represented 47 per cent of the value added by manufacture. A very rough approximation of the relation of labor cost to value of product for the two industries combined can be made by taking the value of products for steel works and rolling mills of \$3,366,000,000, which includes the larger part of the pig iron as a raw material and the combined wages paid (\$42,000,000 for blast furnaces and \$689,000,000 for steel works and rolling mills). This shows a ratio of about 22 per cent. This figure is too low to the extent of considerable duplication in the value of products figure.

Steel Code figures for 1934 show a wage payment of \$357,000,000 and a total sales value of about \$1,148,000,000 or a ratio of 31 per cent for wage costs.

IRON AND STEEL INDUSTRY

EMPLOYMENT

I-A Index of Employment (1923 = 25=100) a/

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
JAN	100.6	96.9	90.7	100.4	97.7	76.5	57.6	46.5	65.0	69.3
FEB	102.4	98.5	94.1	101.2	99.5	76.3	57.8	48.7	67.3	
MAR	102.2	100.0	96.1	102.6	98.6	77.1	56.8	46.0	70.1	
APR	102.9	99.7	96.3	103.6	98.6	76.6	55.1	47.2	72.9	
MAY	101.8	99.0	96.3	105.3	97.9	73.8	53.0	49.8	76.8	
JUN	100.2	96.9	95.8	105.7	94.1	65.5	50.6	54.6	79.1	
JUL	98.9	95.3	95.1	105.3	89.5	67.9	47.6	6.1	72.4	
AUG	100.0	94.2	96.5	106.5	85.6	65.7	46.4	69.8	69	
SEP	101.7	93.8	97.1	105.5	83.1	62.3	47.3	71.8	65.3	
OCT	101.8	92.8	97.7	103.1	81.7	59.4	48.8	70.2	65.4	
NOV	101.7	91.3	99.6	101.	79.7	58.0	49.0	6.9	5.9	
DEC	98.6	90.1	99.6	96.9	7.8	58.0	48.0	6	66.9	
Average	101.0	95.7	96.2	103.2	0.3	68.4	51.5	58.5	6	

I-B Index of Employment (1929=100) b/

JAN	97.5	93.9	87.9	97.3	9.7	74.1	56	53.7	78.3	83.5
FEB	99.2	95.4	91.2	98.1	96.4	73.9	7.3	56.4	81.1	
MAR	99.0	96.9	93.1	99.4	95.5	74.7	57.	54.5	84	
APR	99.7	96.6	93.3	100.6	95.5	74.2	56.	56.	87.	
MAY	98.6	95.9	93.3	102.0	94.9	71.5	54.	59.5	92.5	
JUN	97.1	93.9	92.8	102.4	91.2	67.3	52.9	64.8	9.2	
JUL	95.8	92.3	92.2	102.0	86.7	65.8	50.7	2.7	8.2	
AUG	96.9	91.3	93.5	103.2	82.9	63.7	50.3	80.8	84.0	
SEP	98.5	90.9	94.1	102.2	80.5	60.4	51.	3.4	78.7	
OCT	98.6	89.9	94.7	99.9	79.2	57.6	53.9	82.5	8.8	
NOV	97.6	88.5	96.5	96.6	77.2	56.2	54.7	81.0		
DEC	95.5	87.3	95.5	93.9	75.4	56.2	54.4	80.7		
Average	97.8	92.7	93.3	100.0	87.5	66.3	54.2	.9	64.0	

I-C Estimated Number Employed (000) c/

JAN	410.3	39.2	369.9	409.5	398.5	311.8	237.8	226.0	32.5	31.4
FEB	417.5	401.5	3.3.	412.8	405.7	311.0	241.1	237.3	34.3	
MAR	416.6	407.8	391.8	418.5	401.9	314.4	239.9	229.3	35.2	
APR	419.6	406.5	392.	423.4	401.9	312.3	235.7	236.9	369.5	
MAY	414.9	403.6	392.6	429.3	399.4	300.9	230.2	250.4	38.3	
JUN	408.6	395.2	390.5	430.9	383.8	283.2	222.6	272.7	400.6	
JUL	403.2	388.4	388.0	429.3	364.9	276.9	213.4	305.9	367.0	
AUG	407.8	384.2	393.5	434.1	348.9	268.1	211.7	336.7	353.5	
SEP	414.5	382.5	396.0	430.1	338.8	254.2	217.6	351.0	331.2	
OCT	414.9	378.3	398.5	420.4	333.3	24.4	226.8	347.2	331.6	
NOV	410.7	372.4	406.1	414.9	324.9	236.5	230.2	340.9	334.1	
DEC	401.9	367.4	406.1	395.5	317.3	236.5	228.9	339.6	3.2	
Average	411.6	390.1	392.6	420.8	368.2	279.0	228.1	28.9	3.35	

a/ Bureau of Labor Statistics Index for Iron and Steel Industry (Blast Furnaces, Steel Works and Rolling Mills).

b/ B. S. Index shifted to 1929 base; adjusted to 1933 Census by NRA

c/ 1929 Index multiplied by 420.8.

IRON AND STEEL INDUSTRY

PAYROLLS

II-A

Index of Payrolls (1923-25=100) a/

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
JAN	101.6	96.5	88.5	104.6	95.0	62.7	31.8	20.7	41.2	55.6
FEB	104.9	102.6	100.7	101.7	104.5	69.3	33.1	22.8	46.1	
MAR	106.8	106.0	102.7	112.2	103.5	72.3	31.7	20.6	51.2	
APR	106.0	106.9	100.7	115.0	104.5	71.4	26.4	22.6	59.4	
MAY	103.2	101.5	103.1	116.4	101.6	65.4	27.3	27.8	66.1	
JUN	102.1	99.7	97.5	114.5	95.8	56.2	22.5	34.8	66.9	
JUL	96.2	89.3	84.0	107.5	81.6	49.5	18.9	41.1	47.9	
AUG	95.4	85.6	100.3	114.1	79.2	47.0	18.8	53.1	44.0	
SEP	102.7	91.6	99.1	112.5	76.2	40.3	19.6	47.9	37.3	
OCT	107.4	91.9	103.5	109.9	76.2	37.6	22.3	48.0	39.2	
NOV	103.2	80.0	106.6	102.7	68.3	35.2	22.2	42.2	41.7	
DEC	102.5	80.7	104.5	95.3	66.3	35.8	21.2	43.0	45.5	
Average	103.1	96.7	100.5	108.6	87.7	53.5	24.8	35.4	49.2	

II-B

Index of Payrolls (1929=100) b/

JAN	92.5	86.1	82.0	95.5	86.7	57.2	29.2	22.1	43.1	56.2
FEB	95.8	93.7	91.9	100.2	95.4	63.3	30.7	24.2	48.3	
MAR	97.5	96.8	93.8	102.4	94.5	66.0	29.6	22.4	54.6	
APR	96.8	97.6	91.9	105.0	95.4	65.2	26.9	24.5	62.2	
MAY	94.0	92.7	94.1	106.3	92.8	59.7	26.1	29.5	69.2	
JUN	93.2	91.0	90.6	104.5	87.5	51.3	21.9	36.2	72.2	
JUL	87.9	81.5	85.8	98.4	74.5	45.2	19.0	42.4	50.2	
AUG	89.8	85.5	91.6	104.2	72.3	42.9	19.1	53.4	46.1	
SEP	92.5	83.1	90.5	102.7	69.6	36.8	20.1	48.8	39.1	
OCT	95.1	83.9	96.3	100.3	69.6	34.3	22.8	49.1	41.1	
NOV	95.1	82.2	97.3	93.8	62.4	32.1	23.0	44.1	43.7	
DEC	93.7	82.8	95.7	87.0	60.5	32.7	22.2	45.1	48.8	
Average	94.0	88.3	91.8	100.0	80.1	48.9	25.0	36.8	51.6	

II-C

Estimated Monthly Payrolls In Dollars (000,000) c/

JAN	56.72	53.84	50.12	58.37	52.99	34.96	17.85	13.51	27.34	34.33
FEB	55.55	57.27	50.17	61.24	58.31	38.69	18.76	14.79	27.52	
MAR	59.59	59.16	57.33	62.58	57.76	40.34	18.09	13.69	33.37	
APR	59.16	59.65	56.17	64.17	58.31	39.85	16.44	14.97	38.01	
MAY	57.45	56.66	57.51	64.97	56.72	36.49	15.95	18.03	42.29	
JUN	56.96	55.62	55.49	63.87	56.48	31.35	13.38	22.12	44.13	
JUL	53.72	49.81	52.44	60.14	45.53	27.63	11.61	25.91	30.68	
AUG	54.88	52.26	55.98	60.68	44.1	26.22	11.67	32.64	28.17	
SEP	57.33	51.09	55.11	62.77	42.4	22.49	12.28	29.82	23.90	
OCT	59.96	51.28	58.86	61.00	42.54	20.96	13.93	30.01	25.12	
NOV	58.12	50.24	59.47	57.33	38.14	19.62	14.06	26.95	26.71	
DEC	57.27	50.61	58.49	53.27	36.98	19.99	13.57	27.56	29.83	
Average	57.45	53.97	56.10	61.12	48.95	29.89	15.28	22.49	31.51	

a/ B.L.S. Index for Iron and Steel Industry (Blast Furnaces Steel works and Rolling Mills).

b/ B.L.S. Index shifted to 1929 base. Adjusted to 1933 Census by NRA.

c/ B.L.S. 1929 Index multiplied by \$61,117,000.

IRON AND STEEL INDUSTRY
MAN-HOURS

III-A

Average hours Per Week a/

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
JAN				48.0	45.3	37.2	29.0	25.3	29.4	
FEB				47.8	47.9	39.9	28.8	26.9	31.8	
MAR	49.3	46.2	48.5	48.4	48.5	42.0	28.3	24.6	34.2	
APR				52.4	48.6	41.9	26.3	28.5	35.4	
MAY				52.2	47.4	38.7	26.3	32.7	36.6	
JUN	49.1	48.8	49.7	51.2	47.3	35.5	24.7	37.9	37.2	
JUL				48.9	42.0	32.1	22.8	40.0	28.1	
AUG				51.0	42.0	31.9	23.2	39.6	27.0	
SEP	47.7	45.6	48.2	49.9	42.1	29.6	24.3	33.7	24.1	
OCT				50.0	42.1	29.4	26.7	33.4	25.1	
NOV				47.6	39.1	30.6	25.9	29.0	26.7	
DEC	48.8	46.8	49.9	46.6	38.5	31.0	24.9	30.0	29.1	
Average	48.7	47.4	49.1	49.5	46.3	35.0	25.9	31.8	30.4	

III-B

Estimated Total Monthly Man-Hours (000,000) b/

JAN				69.25	81.65	54.28	31.54	27.91	45.03	
FEB				89.40	88.21	58.53	32.63	30.49	50.03	
MAR	93.41	88.97	85.22	91.62	88.73	62.54	32.13	28.29	56.27	
APR				100.11	88.89	61.88	29.36	31.19	59.95	
MAY				101.20	66.46	56.40	28.43	37.02	65.36	
JUN	93.02	90.39	89.37	99.64	83.17	48.68	27.96	45.89	68.52	
JUL				94.56	70.37	42.97	23.55	53.64	48.31	
AUG				99.81	67.88	41.16	23.91	59.02	44.02	
SEP	69.21	61.16	86.33	96.72	66.26	35.93	25.22	52.50	37.11	
OCT				94.45	65.45	33.86	28.66	50.52	38.77	
NOV				89.02	59.22	34.00	28.75	45.68	40.72	
DEC	91.47	79.98	91.52	82.95	57.24	34.70	27.81	47.11	45.06	
Average	91.81	85.09	88.08	94.05	75.32	47.43	29.33	43.02	49.93	

III-C

Index of Man-Hours (1929=100) c/

JAN				94.9	86.8	57.7	33.5	29.7	47.9	
FEB				95.1	93.8	62.3	34.7	32.4	53.2	
MAR	99.3	94.6	90.6	97.4	94.4	66.5	31.2	30.1	59.8	
APR				106.5	94.5	65.8	31.2	33.2	63.8	
MAY				107.6	92.0	60.0	30.2	39.4	69.5	
JUN	96.9	96.1	95.0	106.0	88.5	51.8	29.7	48.8	72.9	
JUL				100.6	74.8	45.7	25.0	57.0	51.4	
AUG				106.2	72.2	43.8	25.4	62.8	46.8	
SEP	94.8	86.3	91.8	102.9	70.5	38.2	26.8	55.8	39.5	
OCT				100.5	69.6	36.0	30.5	53.7	41.2	
NOV				94.7	63.0	36.2	30.6	48.6	43.3	
DEC	97.2	85.0	97.3	88.2	60.9	36.9	29.6	50.1	47.9	
Average	97.6	90.5	93.7	100.0	80.1	50.4	31.2	45.7	53.1	

a/ 1926-1931, derived by dividing average weekly earnings (B.L.S.) by hourly earnings (N.I.C.B. x .985); 1932 o date, B.L.S., current month.

b/ Estimated monthly payrolls (II-C) divided by average hourly wage (IV-A).

c/ Monthly man-hours shifted to 1929 base (94,050,000 man-hours = 100).

IRON AND STEEL INDUSTRY

WAGE RATES

IV-A		Average Hourly wage (Cents) <u>a/</u>									
		1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
JAN					65.4	64.9	64.4	56.6	48.4	58.5	
FEB					68.5	66.1	66.1	57.5	48.5	59.0	
MAR		62.4	63.	64.0	68.3	65.1	64.5	56.3	48.4	59.3	
APR					64.1	65.6	64.4	56.0	48.0	63.4	
MAY					64.2	65.6	64.7	56.1	48.7	64.7	
JUN		62.2	63.4	63.1	64.1	64.3	64.4	50.0	48.2	64.4	
JUL					63.6	64.7	64.3	49.3	48.3	63.5	
AUG					64.8	65.1	63.7	48.8	55.3	64.0	
SEP		62.0	62.9	63.2	64.9	64.2	62.6	48.7	56.8	64.4	
OCT					64.9	50	61.9	48.6	59.4	64.8	
NOV					64.4	64.4	57.7	48.9	59.0	65.6	
DEC		63.9	63.4	64.4	64.1	64.4	57.6	48.8	58.5	66.2	
Average		62.6	63.4	63.7	65.0	65.0	63.0	52.1	52.3	63.2	

IV-B		Average Weekly Wage (Dollars) <u>b/</u>									
JAN		30.28	29.64	29.30	31.36	29.43	23.95	16.06	12.71	17.19	
FEB		30.69	31.02	31.90	32.73	31.67	23.36	16.46	13.31	18.62	
MAR		31.24	30.57	31.94	33.03	31.56	27.11	16.17	12.73	20.26	
APR		30.77	31.90	31.17	33.60	31.85	24.58	14.87	13.79	22.19	
MAY		30.34	30.4	31.94	33.53	31.10	25.03	14.93	16.02	23.60	
JUN		30.53	30.48	31.02	32.83	30.39	22.87	12.88	18.33	23.86	
JUL		29.17	27.69	29.65	31.07	27.17	20.62	11.52	19.19	18.06	
AUG		29.42	29.48	31.20	32.52	27.35	20.35	11.74	21.94	17.23	
SEP		30.21	28.92	30.62	32.38	27.00	18.53	11.99	19.19	15.56	
OCT		31.62	29.34	32.45	32.45	27.39	18.21	13.19	19.71	16.30	
NOV		30.85	29.83	31.9	30.67	25.17	17.65	13.00	17.20	17.43	
DEC		31.08	29.83	31.70	29.89	24.89	17.87	12.50	17.49	19.12	
Average		30.43	29.92	31.25	32.17	28.75	22.13	13.78	16.80	19.12	

JAN											
FEB											
MAR											
APR											
MAY											
JUN											
JUL											
AUG											
SEP											
OCT											
NOV											
DEC											

a/ 1926-31, N.I.C.B. multiplied by .985; 1932 to date, B.L.S

b/ B.L.S.

IRON AND STEEL

SECTION III. MATERIALS - Raw and Semi-Processed,

1-2-3. - Iron ore, scrap, coke and limestone are the major raw materials used in blast furnaces for the production of pig iron. Scrap and alloy materials, of which manganese alloys are the largest in volume, represent additional materials used in steel making. In further processing, large amounts of domestic zinc are used in making galvanized sheets and of imported tin in producing tin plate.

The larger integrated steel companies, representing a predominant factor in the industry, own and operate iron ore mines directly or through subsidiaries, mine their own coal and convert it into by-product coke for use in their blast furnace operations.

Iron Ore. - Iron ore is produced in some 16 different states but, in 1929, about 88 per cent of the total shipments came from Michigan, Minnesota and Wisconsin (the Lake Superior District) and moved in interstate lake trade. Alabama is the only large pig iron producing state using local iron ores. In 1929, there was an import of 3.1 million tons of iron ore valued at \$3,000,000 and coming largely from Chile, Cuba, Sweden and French Africa. It was used primarily to supplement local ores in eastern Pennsylvania and Maryland. Probably at least 90 per cent of the iron ore mined in the United States is produced by iron and steel companies or their subsidiaries.

Coke. - In 1929, 75 per cent of the coke produced in the United States was consumed by blast furnaces. Large iron and steel companies own coal mines and produce their own coke, primarily in by-product ovens located in the same plant with the blast furnaces. Production of high grade coals used in coke manufacture is concentrated in West Virginia, Pennsylvania, Kentucky, Alabama and Virginia. In 1933, out of a total of 40 million tons of coal used for coke, 70 per cent or 28 million tons was used in states in which it was not produced.

Limestone. - Is used for a flux and is of wide occurrence and generally of local origin.

Scrap. - Large amounts of iron and steel scrap are used in blast furnace and open hearth steel furnaces. No accurate figures are available as to its assembly but much of it must move in interstate commerce.

Tin. - Tin is used for tin and terne plate. Practically all of the tin is imported from the Dutch East Indies and British Malaya. The 28 thousand long tons used, in 1929, by the Iron and Steel Industry was about 32 per cent of the total import of 87 thousand long tons valued at \$22,000,000.

Nickel. - Nickel is used in special alloy steels to impart strength and toughness. Almost the total supply is imported from Canada. The 16,000 long tons used, in 1929, by the Iron and Steel Industry, represented 37 per cent of the total import of 43,000 tons valued at \$19,000,000.

Zinc. - 115,000 long tons of zinc were used by the Iron and Steel Industry for galvanizing in 1929 and represented about 16 per cent of the total zinc production. It was primarily of domestic origin. The chief

zinc producing states were Oklahoma, Kansas, New Jersey, Montana, Utah, Idaho, New Mexico and Colorado.

Manganese Alloys. - Manganese alloys are primarily made from imported high grade manganese ores coming largely from Russia, Brazil, India and Africa. Total imports of manganese ore in 1929 were 615,000 long tons valued at \$8,000,000.

III - 4. Machinery and Equipment

There are no figures available as to the amount spent for machinery or equipment.

The Secretary of the Code Authority, W. S. Tower, stated that there were only a few companies producing blast furnace and rolling mill equipment and that the most important ones were located in Pennsylvania and Ohio.

The Manufacturing Census of 1929 shows a value of product of 19.6 million dollars for producers of rolling mill machinery. Of this total 14.1 million dollars was produced in Pennsylvania and Massachusetts, 4.9 million dollars in Ohio and the remaining 0.6 million mainly in Illinois, Indiana and Connecticut.

III - 5. Percentage Cost of Materials to Value of Products

Census figures involve many duplications so that no very accurate percentage can be determined for combined blast furnace and steel mill products. A very rough measure of total net value can be obtained by combining the values added by manufacture with the cost of primary materials as given. In the 1929 Census, the value added by manufacture in combined blast furnaces and steel works and rolling mills was \$1,623,000. The major primary raw materials (as tabulated in the accompanying table with duplications largely eliminated) amounted to \$983,000,000 with an addition of \$208,000,000 for cost of fuel and purchased energy in steel works and rolling mills. These combined figures give a total net value of product of 2,814 million dollars of which raw materials, including fuel and purchased energy, represents 1,191 million dollars or about 42 per cent.

BLAST FURNACES AND STEEL WORKS AND ROLLING MILLS PRINCIPAL RAW MATERIALS 1929

	Quantity	Value
Iron Ore	76.1 million gross tons	\$354 million
Coke	38.1 million gross tons	189 million
Limestone and Dolomite	15.9 million gross tons	24 million
Iron and Steel Scrap <u>a/</u>	20.1 million gross tons	253 million
Pig Tin	28,000 gross tons	30 million
Zinc	115,000 gross tons	18 million
Nickel	16,000 gross tons	11 million
Copper, Brass, Bronze	51,000 gross tons	20 million
Aluminum	9,000 gross tons	4 million
Ferro Alloys	735,000 gross tons	80 million
Total above	151.2 million gross tons	983 million
Cost of Fuel and Purchased Energy -- Steel Works and Rolling Mills		208 million

a/ Scrap reworked in the same plant (14.0 million gross tons) or transferred to other plants under the same ownership (1.0 million gross tons) has been deducted from the total Census figure of 35 million tons as representing duplications in value. The average value per ton has been used to evaluate the remaining tonnage as used here.

Source: U. S. Census of Manufactures, 1929.

IRON AND STEEL - RAW MATERIALS

LAKE SUPERIOR IRON ORE: 1/ TOTAL SHIPMENTS AND RECEIPTS BY PORTS, 1929-1931-1933-1934- MILLIONS OF GROSS TONS

	1929	1931	1933	1934
Total all U. S. Shipments	75.6	28.5	24.6	
Total Lake Superior Ores	66.2	23.5	21.7	22.2
Per Cent - Lake Superior of Total U. S. Shipments	87.6	82.5	88.2	
Receipts by Ports of Lake Superior Iron Ore				
Indiana -	((1.0	1.4
Indiana Harbor	(17.5	(7.7	1.4	1.6
Gary	((
Illinois - South Chicago	((2.0	2.2
Michigan - Detroit	1.0	0.8	0.6	0.8
Ohio				
Toledo	1.9	0.7	0.9	0.8
Huron	1.2	0.4	0.5	0.4
Lorain	3.9	1.8	2.0	2.1
Cleveland	11.1	3.5	4.7	4.1
Fairport	2.4	1.0	1.1	0.7
Ashtabula	8.8	1.8	2.1	1.8
Conneaut	9.6	3.6	2.8	3.3
Pennsylvania - Erie	1.4	0.6	0.8	0.9
New York - Buffalo	5.2	1.2	1.5	1.7
Canada - Ontario Ports	<u>1.2</u>	<u>0.4</u>	<u>0.2</u>	<u>0.4</u>
Total all Lake Ports	65.2	23.5	21.6	22.2
All Rail Shipments	1.0	-	0.1	-

Sources: U. S. Bureau of Mines and Lake Superior Iron Ore Association.

1/ Production takes place in Minnesota, Michigan and Wisconsin.

INTERSTATE MOVEMENT OF COAL
USED IN BY PRODUCT COKE PRODUCTION
1933
Millions of Short Tons

State	Coal Used	Coal from Within State	Coal from Other States
Alabama	2.5	2.5	0
Colorado	0.2	0.2	0
Illinois	2.3	0	2.3 (Ky. 0.4 - Penna. 0.3 W. Va. 1.6)
Indiana	2.9	0	2.9 (Ky. 1.2 - W. Va. 1.7)
Maryland	1.0	0	1.0 (Penna. 0.3 - W. Va. 0.7)
Massachusetts	1.5	0	1.5 (W. Va. 1.5)
Michigan	3.2	0	3.2 (Ky. 1.5 - Penna. 0.7- W. Va. 1.0)
Minnesota	0.6	0	0.6 (Ky. 0.2 - Penna. 0.2 W. Va. 0.2)
New Jersey	1.2	0	1.2 (Va. 0.2 - W. Va. 1.0)
New York	5.0	0	5.0 (Ky. 0.4 - Penna. 2.5 Va. 0.3 - W. Va. 1.8)
Ohio	5.2	0	5.2 (Ky. 0.2 - Penna. 2.2 Va. 0.1 - W. Va. 2.7)
Pennsylvania	9.3	7.5	1.8 (Ky. 0.1 - W. Va. 1.7)
Tennessee	0.1	0.1	0
Utah	0.1	0.1	0
Washington	0.1	0.1	0
West Virginia	1.6	0.5	1.1 (Penna. 1.1)
Connecticut, Kentucky Missouri, Rhode Island, Wisconsin	2.1	0.2	1.9 (W. Va. 1.9)
All Other	<u>0.6</u>	<u>0</u>	<u>0.6</u> (Ky. 0.1-W. Va. 0.5)
Total All States	39.5	11.2	28.3 (Ky. 4.1 - Penna. 7.3 W. Va. 16.3 - Va. 0.6)

West Virginia furnished 16.8 million tons of which 16.3 million went to other states. Pennsylvania supplied 14.8 million tons of which 7.5 million went to other states. Kentucky supplied 4.3 million tons of which 4.1 went to other states. Alabama supplied and used 2.5 million tons. Virginia supplied 0.6 million tons to other states. Colorado, Tennessee, Utah and Washington supplied a total of 0.5 million tons for their own use.

Source: U. S. Bureau of Mines. Mineral year book - 1934.

IRON AND STEEL

PRIMARY RAW MATERIALS - IRON ORE AND COKE

	1929	1930	1931	1932	1933
A. Iron Ore. - Millions of Gross Tons					
Domestic Production					
Minnesota	45.8	34.5	17.4	5.1	12.0
Michigan	15.4	13.5	7.6	2.6	2.4
Wisconsin	1.6	1.3	0.9	0.4	0.2
Total Lake Superior	62.8	49.3	25.9	8.1	14.6
New York, Pennsylvania, New Jersey	2.2	2.3	0.9	0.2	0.4
Alabama	6.4	5.7	3.6	1.4	2.1
Georgia, Tennessee, North Carolina, Virginia	0.2	0.1	-	-	-
Missouri, Wyoming, Vermont, New Mexico, Colorado	1.4	0.9	0.7	0.2	0.4
Total Domestic	75.0	58.3	31.1	9.9	17.5
Foreign Imports	5.1	2.8	1.5	0.6	0.9
Total Domestic and Foreign	76.1	61.1	32.6	10.5	18.4
B. Coke. - Millions of Net Tons					
Total U. S. Production	59.9	48.0	33.5	21.8	27.6
Indicated U. S. Consumption	58.4	46.1	31.7	22.2	27.7
Consumption by Blast Furnaces	45.6	32.1	18.4	8.6	13.0
Per Cent of Consumption by Blast Furnaces	74.7	69.8	57.9	38.9	47.0
Average Sales Realization Per Ton of Furnace Coke	\$5.38	\$4.95	\$4.59	\$4.22	\$4.00

Sources: U. S. Bureau of Mines for Production, Bureau of Foreign and Domestic Commerce for Imports - Iron and Steel Institute for Consumption of Coke by Blast Furnace.

IRON AND STEEL

IV. PRODUCTION AND DISTRIBUTION

Fairly representative statistics for volume are available but information as to value is inadequate and often involves duplication.

Volume of production by states is shown for pig iron, steel ingots and finished steel. These figures indicate a 75 per cent concentration in Pennsylvania, Ohio, Indiana and Illinois. However, important contributions are made by many other states.

No adequate data are available on the interstate shipments of iron and steel products. A pioneer study of shipments from the Pittsburgh District (released as Supplement No. 1 of the NRA report on the "Operation of the Basing Point System") furnishes a sample to indicate the wide distribution of industry products. While this area may have the widest distribution of any district, similar figures, if available, would undoubtedly show extensive interstate shipments for other centers of production such as Buffalo, the Chicago district and Birmingham.

A large part of distribution is carried on directly by large companies maintaining sales offices in more than one state.

Both long time and recent trends show a geographic spread in the industry. The most notable recent trend is the movement of capacity toward automotive manufacturing areas.

STEEL WORKS AND ROLLING MILLS

Value of Products by States

(Millions of Dollars)

State	1929	1931	1933
New York	139	55	38
New Jersey	55	23	16
Pennsylvania	1,213	483	367
Ohio	313	326	289
West Virginia	94	56	47
Kentucky	45	20	a
Indiana	334	138	116
Illinois	268	107	89
Michigan	56	30	30
Wisconsin	30	11	6
Missouri	21	9	8
Alabama	74	a	a
California	35	16	18
Oregon	1	1	1
Washington	6	a	a
Other States	<u>177</u>	<u>128</u>	<u>116</u>
Total United States	\$3,366 mill.	\$1,403 mill.	\$1,141 mill.

Comment: Table can be used only to show very rough relations, as there are many duplications in total values as given.

a: Included in Other States.

Source: Census of Manufactures, 1929, 1931, 1933.

IRON AND STEEL INDUSTRY

Pig Iron Production

Millions of gross tons

	1929	1930	1931	1932	1933	1934
<hr/>						
A. Raw Materials Used in Pig Iron Production						
Total Iron Ore	73.1	53.7	29.7	12.8	21.6	
Cinder-Scale-Scrap	7.4	6.3	3.8	2.2	2.8	
Limestone	15.6	11.1	6.2	3.0	4.6	
Coke	42.4	31.2	17.7	8.3	12.5	
<hr/>						
B. Production Pig Iron and Ferro-Alloys						
Pig Iron	41.8	31.0	18.0	8.6	13.0	
Ferro-Alloys	0.9	0.7	0.5	0.2	0.3	
TOTAL	<u>42.7</u>	<u>31.7</u>	<u>18.5</u>	<u>8.8</u>	<u>13.3</u>	<u>15.5</u>
<hr/>						
By States						
Pennsylvania	14.5	10.3	5.2	2.2	3.9	
Ohio	9.8	6.8	4.2	2.4	4.0	
Indiana & Michigan	5.1	3.9	2.3	1.0	1.5	
Illinois	4.4	3.3	2.0	0.9	1.0	
Alabama	2.7	2.4	1.7	0.7	0.9	
N.Y. - N. J. - Mass.	3.0	2.2	1.3	0.7	0.7	
Kd. - Va.	1.2	1.1	0.7	0.4	0.6	
W. Va. - Ky. - Tenn.	1.0	0.9	0.8	0.3	0.5	
Minnesota	0.4	((((
Iowa - Col. - Utah.	0.6	(0.8	(0.3	(0.2	(0.2	
TOTAL	<u>42.7</u>	<u>31.7</u>	<u>18.5</u>	<u>8.8</u>	<u>13.3</u>	
<hr/>						
C. Pig Iron Delivered in Molten Condition	29.6	21.0	12.0	5.6	9.6	
<hr/>						
D. Pig Iron Production for Sale and for Use by Maker						
For Sale	9.0	6.6	4.0	1.7	2.1	
For Use	<u>32.8</u>	<u>24.4</u>	<u>14.0</u>	<u>6.9</u>	<u>10.9</u>	
TOTAL PIG IRON	<u>41.8</u>	<u>31.0</u>	<u>18.0</u>	<u>8.6</u>	<u>13.0</u>	
<hr/>						

Source: American Iron and Steel Institute - Annual Statistics

IRON AND STEEL INDUSTRY

Production of Steel Ingots and Castings
Million Gross Tons

	1929	1930	1931	1932	1933	1934
Total Production						
Steel Ingots	54.9	59.6	25.4	13.5	22.9	
Steel Castings	<u>1.6</u>	<u>1.1</u>	<u>0.5</u>	<u>0.2</u>	<u>0.3</u>	
TOTAL	56.5	40.7	25.9	13.7	23.2	25.2

Production by States - Steel Ingots and Castings

New England	0.3	0.2	0.2	0.1	0.2	
New York	2.5	1.7	1.1	0.6	0.9	
New Jersey	0.2	0.1	0.1	-	0.1	
Pennsylvania	20.1	14.4	8.3	3.8	6.4	
Del.-Md.-D.C.-Va.	1.9	1.5	1.1	0.6	1.0	
West Virginia	1.5	1.2	0.9	0.5	0.8	
Ky. and Tenn.	0.3	0.4	0.4	0.5	0.4	
Ge.-Fla.-Ala.	1.7	1.3	1.0	0.5	0.8	
La.-Texas	-	-	-	-	-	
Ohio	13.2	9.2	6.3	3.9	6.7	
Indiana	6.7	5.1	3.0	1.5	2.7	
Illinois	4.8	3.3	1.9	1.0	1.8	
Michigan	0.5	0.5	0.3	0.4	0.5	
Wisconsin	0.1	0.1	-	-	-	
Minnesota	0.4	0.3	0.1	0.1	0.1	
Missouri	0.3	0.3	0.2	0.1	0.2	
California	0.5	0.4	0.3	0.2	0.3	
Other Western States (Mostly Colorado)	0.9	0.7	0.3	0.2	0.2	
TOTAL	56.5	40.7	25.9	13.7	23.2	25.2

Capacity - Steel Ingots and Castings

Open Hearth	55.3	53.5	50.9	50.9	62.0	
Bessemer	8.6	3.1	8.1	7.9	7.9	
Crucible	0.03	0.03	0.02	0.02	0.02	
Electric	<u>1.3</u>	<u>1.3</u>	<u>1.3</u>	<u>1.3</u>	<u>1.4</u>	
TOTAL	65.2	69.0	70.3	70.2	71.4	

Source: American Iron and Steel Institute - Annual Statistics.

IRON AND STEEL

PRODUCTION OF ALL KINDS OF FINISHED ROLLED
IRON AND STEEL - BY STATES
MILLIONS OF GROSS TONS

	1929	1930	1931	1932	1933	1934
New England	0.3	0.2	0.1	0.1	0.2	
New York	1.9	1.3	0.9	0.5	0.6	
New Jersey	0.2	0.1	0.1	0.1	0.1	
Pennsylvania	14.9	10.5	6.3	3.3	5.1	
Del., Md., Va.	1.2	1.0	0.7	0.4	0.7	
West Virginia	1.3	1.0	0.8	0.4	0.8	
Ky., Tenn., Ga., Tex.	0.7	0.4	0.4	0.3	0.4	
Alabama	1.2	0.9	0.8	0.4	0.6	
Ohio	8.8	6.1	4.1	2.3	4.0	
Indiana	5.1	3.8	2.3	1.1	2.0	
Illinois	5.2	2.2	1.4	0.7	1.2	
Mich., Wis., Minn.	0.8	0.8	0.6	0.5	0.7	
Mo., Okla.	0.3	0.3	0.2	0.1	0.1	
Col., Ut., Wash.	0.7	0.5	0.3	0.1	0.2	
Calif., Canal Zone	0.4	0.3	0.2	0.1	0.2	
Total	41.1	29.5	19.2	10.5	16.7	19.0

Source: American Iron and Steel Institute - Year Books.

INTERSTATE DISTRIBUTION OF IRON AND STEEL
PRODUCTS FOR ALL MILLS
WITHIN A 50-MILE RADIUS OF
PITTSBURGH, PA.

Sample Study (3 months ending June 30, 1934)

Total distribution for 1,531,000 net tons of code products
representing approximately 20% of the national total.

SHIPMENTS FROM THE PITTSBURGH DISTRICT

(In Thousands of Net Tons)

Pennsylvania	517	
New England	51	(Maine 6, N. H. 4, Vt. 1, Mass. 24, R.I. 4, Conn. 12)
New York	161	(Including adjacent parts of New Jersey)
Maryland	41	
Delaware and D. C.	3	
Virginia	24	
West Virginia	10	
Ohio	228	
Michigan	138	
Indiana	23	
Illinois	67	
Kentucky	15	
Wisconsin	4	
South Eastern States	11	(N. C. 3, Ga. 3, Fla. 1, Ala. 1, Miss. 3)
North Central States	41	(Minn. 3, N. D. & S. D. 1, Iowa 4, Neb. 1, Kan. 8, Mo. 24)
South Central States	137	(Okla. 10, Ark. 34, La. 21, Texas 72)
Mountain States	8	(Mont. & Idaho 2, Colo. 1, Utah 2, N. M. 3)
Pacific States	43	(Calif. 24, Oregon 8, Washington 11)
TOTAL SHOWN	1,522	

Source: Supplement No. 1, N.R.A. Report - Operation of the Basing
Point System, November 30, 1934.

IRON AND STEEL

IV. 4-5-6 Wholesale and Retail Distribution.

The major industry products for sale are heavy finished products of standard quality or semi-finished products for further processing. Consequently, direct sales to the consumer by the producing company predominate.

An examination of the 1935 Directory of the Iron and Steel Institute showed that 140 companies, out of 304 companies listed, maintained sales offices in more than one state.

W. S. Tower, Secretary of the Code Authority, estimated that roughly 15 per cent of industry products were handled by wholesalers or jobbers. (This is borne out by the attached table as published in Iron Age for 1933 and 1934.) Furthermore, he stated that there were about 900 recognized sales representatives who had signed the special sales agreement form for observance of Code selling practices.

This evidence indicates the predominance of direct selling through offices or sales agents. No detailed data of sales by states is available.

DISTRIBUTION OF ROLLED STEEL IN 1933 AND 1934
THROUGH JOBBERS AND WAREHOUSES ACCORDING
TO SHIPMENTS OF COMPANIES PRODUCING
75% OF THE YEAR'S OUTPUT

In Thousands of Gross Tons

<u>Products</u>	<u>Total</u>	1933		<u>Total</u>	1934	
		By Job- bers and Warehouses	Percent of Total		By Job- bers and Warehouses	Percent of Total
Rails	354	2	0.6	804	6	0.8
Track Accessories	207	7	3.3	322	9	2.9
Plates	920	78	8.5	1,090	66	6.1
Structural Shapes	833	107	12.9	1,162	101	8.6
Merchant Bars	1,791	187	10.4	2,035	151	7.4
Concrete Bars	258	23	8.9	319	46	14.5
Strips, Bands, etc.	1,625	87	5.4	1,809	70	3.9
Black Plate for						
Tinning	1,764	51	2.9	1,382	35	2.5
Galv. Sheets	509	234	46.1	631	323	51.1
Other Sheets	1,858	181	9.7	2,297	236	10.3
Pipes and Tubing	822	327	39.8	1,145	437	38.1
Wire Products	1,290	444	34.4	1,324	334	25.2
Alloy Steel				389	7	1.8
All Other Finished Steel	266	29	10.8	294	26	8.8
	<u>12,496</u>	<u>1,758</u>	<u>14.1</u>	<u>15,013</u>	<u>1,846</u>	<u>12.3</u>

Source: Iron Age, January, 1934.

IV. - 7. Value and Volume of Iron and Steel
Products Exported

(Includes pig iron, semi-finished and
finished steel mill products)

A. Thousands of gross tons	<u>1929</u>	<u>1931</u>	<u>1933</u>	<u>1934</u>
Pig Iron	46	7	3	
Semi-manufactures	1,284	442	291	
Manufactures -				
Steel mill Products	<u>1,148</u>	<u>364</u>	<u>272</u>	<u> </u>
Total Shown	2,473	820	566	

B. Millions of Dollars

Pig Iron	0.3	0.2	0.1	
Semi-manufactures	95.7	30.2	18.3	
Manufactures -				
Steel mill Products	<u>93.0</u>	<u>29.8</u>	<u>19.3</u>	<u> </u>
Total Shown	192.5	60.2	37.7	

Source: U. S. Bureau of Foreign and Domestic Commerce.

IV. - 8. Advertising Media Used.

W. S. Tower, Secretary of the American Iron and Steel Institute, stated that, because of the standard quality of many products, price and selling service are dominant factors in marketing. This is borne out by the predominance of direct selling. The trade journal type of advertising is generally used. Many types of minor specialties are widely advertised under trade names.

UNITED STATES

Trend of Pig Iron Production

Percentage by Groups of States

	1914	1919	1923	1927	1929	1933 ^{1/}
New York	6.0	6.2	6.6	6.6	6.4	5.4
Pennsylvania	41.9	39.3	36.7	32.5	34.2	28.5
Ohio	<u>22.6</u>	<u>23.2</u>	<u>23.3</u>	<u>23.5</u>	<u>23.5</u>	<u>30.0</u>
Sub Total	70.5	68.7	66.6	62.6	64.1	63.9
Michigan	1.6	1.4	2.0	2.1	1.9	2.3
Indiana	<u>2/</u>	7.5	7.5	9.5	10.0	9.2
Illinois	<u>7.9</u>	<u>8.3</u>	<u>9.6</u>	<u>9.9</u>	<u>10.2</u>	<u>7.7</u>
Sub Total		17.2	19.1	21.5	22.1	19.2
Alabama	7.9	6.9	7.0	7.7	6.4	6.9
Tennessee	<u>0.7</u>	<u>0.6</u>	<u>0.6</u>	<u>0.3</u>	<u>0.3</u>	<u>-</u>
Sub Total	8.6	7.5	7.6	8.0	6.7	6.9
All Other States ^{3/}	11.4	6.6	6.7	7.9	7.5	10.0
TOTAL UNITED STATES	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Census of Manufactures.

^{1/} Iron Minerals Year Book; U. S. Bureau of Mines

^{2/} Included in "All Other States".

^{3/} Maryland, West Virginia, Kentucky, Minnesota, Colorado and Utah are the most important states in recent years.

NEW STEEL MILL CAPACITY 1934-1935

Completed in 1934

Company	Plant	Annual Capacity Gross Tons
American Sheet & Tin Plate Co.	Gary, Ind.	100,000
Crucible Steel Co. of America	Harrison, N. J.	6,000
Eastern Rolling Mill Co.	Baltimore, Md.	40,000
Elliott Bros. Steel Co.	New Castle, Pa.	12,000
Globe Steel Tubes Co.	Milwaukee, Wis.	30,000
Greer Steel Co.	Dover, Ohio	20,000
McClouth Steel Corp.	Detroit, Mich.	50,000
Otis Steel Co.	Cleveland, Ohio	75,000
Pittsburgh Steel Co.	Allensport, Pa.	30,000
Reeves Mfg. Co.	Dover, Ohio	10,000
Washburn Wire Co.	Phillipsdale, R.I.	45,000
Weirton Steel Co.	Weirton, W. Va.	120,000
West Leechburg Steel Co.	Leechburg, Pa.	12,000
Wheeling Steel Corp.	Yorkville, Ohio	120,000
Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	290,000
TOTAL		960,000

Under Construction 1935

Carnegie Steel Co.	McDonald, Ohio	400,000
Ford Motor Co.	Detroit, Mich.	750,000
Youngstown Sheet & Tube Co.	Campbell, Ohio	850,000
TOTAL		2,000,000

Source: Iron Age. January 3, 1935.

IV. - 10-11. Productive Capacity and Utilization Millions of gross tons.

a/ Pig Iron	1929	1931	1933	1934
Capacity, Jan. 1 <u>1</u> /	51.2	52.7	50.5	51.1
Production	41.8	18.0	13.0	15.5
Per cent of Production to Capacity	81.6%	34.2%	25.7%	30.3%
b/ Steel Ingots				
Capacity, Jan. 1 <u>1</u> /	61.8	66.9	68.2	69.4
Production	54.9	25.4	22.9	25.2
Per cent of Production to Capacity	88.8%	38.0%	33.6%	36.3%

1/ Does not include plants which have been long idle.

Sources: American Iron and Steel Institute - Annual Figures and Code Statistics.

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V. Trade Practices

The Secretary of the Code Authority, W. S. Tower, stated that the Code provisions relating to unfair trade practices indicate those which prevailed prior to the Code and that, due to the high degree of compliance, they had ceased to exist under Code operation. The unfair practices primarily relate to the discrepancy between published prices prior to the Code and actual selling prices. The wide distribution of Code products means that such practices fundamentally affect the national price structure. The price structure consists primarily of a delivered price made up of the producer's selling price filed at designated basing points plus the freight charges to consumers' plant.

Operation of the Price Filing Provisions

There is normally a considerable degree of stability in the prices of iron and steel products. The prices set by such large companies as the United States Steel and Bethlehem tend to set a level to which other companies more or less conform. Prices are more stable for heavy standard products such as rails than for special products used by the automobile industry. Prior to the code there was apparently an abnormal variation between quoted price and actual prices. Prices for Government purchases showed a much greater relative decrease than general price quotations. The bargaining power of large scale buyers, such as the automobile manufacturers, was strengthened.

Restoration of price stability was obviously an important industry objective in writing the code. This program involved provisions relating to filing of prices such as extras, deductions, discounts, basing points, transportation charges, 10 day uniting period for price changes, length of contract and determination of jobbers' discounts.

Article VII briefly sets forth that no member of the code shall sell at prices or terms more favorable than those established in conformity with the provisions of Schedule E. This schedule takes up about 8 pages of fine print in the code and sets up a very elaborate and detailed set of provisions dealing with prices and terms of payment. The most significant and controversial provisions are briefly discussed in this section.

1. Open Price Filing (Schedule E. Sections 2, 3)

Each member is required to file the lowest base price for all his products with the Secretary of the Code Authority. All changes in price are effective ten days after filing, except that under the amended code producers are permitted to file a new price to meet a price reduction of a competitor as soon as such reduction becomes effective. Only one base price can be filed for a product, and any sales below this price require approval of a three-fourths vote of the Board of Directors. A further amendment provided that, during a calendar quarter, a new schedule of lower prices could be filed. All base prices filed are open to inspection at all reasonable times by anyone.

An examination of the records of prices filed indicates the tendency of the open price filing system toward a uniformity of quotations by competitors, although this is not always the case. The same tendency has been noted in the bids submitted to public purchasers. Some critics claim this indicates collusion in price-fixing. On the other side, it is pointed out that price publicity tends to reduce prices to a common competitive level of fair competition and that filed prices, open to public inspection, serve as a protection to buyers of steel products against secret rebates to their competitors.

2. Establishment of New Basing Points

The established policy of the Administration has been to increase the number of basing points for filing prices with the view of establishing a closer relation of such points to producing centers. The basing points for various products are listed in Schedule F. In the amended code there are some 38 different commodity groups for which about 254 basing points are named, including of course many duplications where the same city is specified for several products. Increases under the amended code showed 7 cases of either new or enlarged commodity groupings and the addition of 29 new specified points. Practically all complaints have related to the need for the establishment of new basing points. The major part of these cases have been adjusted either in the original or amended code. A comparatively few cases remain for adjustment. The recent administration report on the operation of the basing point system recommends a considerable further increase in the number of basing points. (See Chapter VII for further discussion)

3. Fabrication-in-Transit Rates (Schedule E, Section 4)

This problem is primarily a result of existing railroad rate practices. It is practically a stop-over privilege by which semi-finished material such as plates, shapes and bars can stop in transit and be fabricated at the purchasers plant and then be reshipped to final destination, for use in an identified structure, on an original through rate from producers mill to point of final delivery, with only minor extra charges. Those benefitting by such rates argued for it and those receiving no benefit were opposed to the practice. The expressed policy of the Iron and Steel Institute is against questionable railroad practices.

Regulation number 9, effective October, 1934, required full payment of the entire freight charge at the time of original shipment by structural steel producers, with the rebate for fabrication-in-transit to be payable only on affidavit. This provision was a safeguard against purchaser in excess of requirements for an identified structure.

This remains an active protest subject and further adjustments will be necessary.

4. Allowances for Other Than All Rail Freight Charges (Schedule E, Section 4)

The original code provides that all prices shall be on a delivered basis, that is not less than the sum of the actual all rail freight charges from the basing point to the delivery point and the published base price quotation. If other transportation is used (water or motor truck) the seller

may allow such deductions as may have been previously approved by the Board of Directors and filed with the Secretary. In the amended code, this provision is amplified by providing that the rates of reduction as approved by the Board shall be "equitable and necessary in order that competitive opportunity to producers and consumers shall be maintained" and makes such action subject to review by the Administrator.

In the original complaints against the use of all rail rates it was contended that an integrated company could ship its semi-finished products between plants by the cheapest transportation possible while it might sell such products to a competing fabricator and include the higher rail rates in the delivered price.

In a summary of active problems prepared by the Deputy Administrator (February 12, 1935) it was stated that over 75 complaints had been received urging that adjustments be made in all freight rates for water transportation. The need for a strong Administration policy in urging that such further adjustments be made was indicated.

5. Standard Charges for Extras (Schedule E, Section 6)

Any extras added to the base price of any product sold by a member of the code are to be uniform for all members. The rates of such extras must be approved by the Board of Directors and lists showing such rates shall be filed with the Secretary and open to inspection by anyone.

The failure to charge proper rates for extras, in relation to added costs of production, is a possible means of price cutting and discrimination. Iron Age, for January, 1935, reports that as a result of a thorough revision under the code, the uniform extras book effective for sales on and after October 1, 1934, had increased in size from a previous 284 pages to 406 pages.

Numerous protests have been made on the enforcement of extra charges. Protests on the charges for plates and shapes were so great that the effective date was postponed twice, the last time to be effective on shipments after April 1, 1935. Their re-consideration has been recommended by the Administration.

The Deputy Administrator, in a summary statement of February 12, 1935, considers that the Board of Directors' power over extras appears to contain important elements of price fixing and that a more democratic basis for the establishment of these mandatory extras is desirable.

6. Classification of Jobbers (Schedule E, Section 4)

The Board of Directors is given the power to establish or change rules and regulations by which the qualifications of a jobber shall be determined. Members selling to jobbers shall secure an agreement, in the form approved by the Board of Directors, and to be filed with the Secretary, that such jobber will not sell to a third party at a lower price than the producer would charge to such party in a direct sale, without the approval of the Board of Directors. Any jobber violating such agreement shall be subject to a penalty of \$10 per ton for the product so sold.

Agreements relating to re-sale have been hard to enforce and a number of penalties have been assessed for violations by pipe jobbers. The situation is complicated by a number of non-code mills.

The Deputy Administrator has expressed the opinion that the definition of a jobber, as set forth in Regulation number 3, is too narrow.

7. Compliance and Assessment of Damages

In Article X of the code, dealing with penalties and damages, and in Schedule A, the Form of Letter of Assent to the Code, the principle of a legal contract to observe all the provisions of the code, as between all members who sign the code, is established. A penalty of \$10 per ton is fixed for all products sold in violation of provisions relating to prices and terms of payment. The Board of Directors is given power to fix the penalties for violations of other provisions where no specific penalty is provided. All penalty payments are turned over to the Treasurer who applies them pro-rata to reduce the regular assessments covering the cost of Code Administration. However, the Board of Directors may, by a two-thirds vote, waive such damages if it shall decide that such violation was innocently made.

Records 1/ covering the operation of the code to January 17, 1935, indicate 46 cases in which penalties were assessed on members of the code, of which 2 were waived in view of later permissive regulations. Of the total cases, 32 were for cases related to public purchases and 14 to private purchasers. The total net penalties assessed were \$21,709 involving a tonnage of 2,171. Considering the total business involved, this is a negligible factor and shows a high degree of compliance with the complicated sales provisions. Of the 44 cases involving penalties, 16 were for failure to make proper charge for extras, 10 related to improper transportation charges, 9 were for sales below minimum filed prices, 6 were for allowances to unqualified jobbers, 2 were for improper cash discounts and 1 was for improper methods of price quotation.

No substantial complaints have been made recently by private customers of the industry although there is considerable opposition to some particular provisions by public purchasers.

The vigilance of the Code Authority in enforcing the price provisions as exemplified by commercial resolution A-34 (December 13, 1934) making a member liable to liquidated damages on the full tonnage of a contract if he is in violation on any part of it.

1/ Compiled in the Deputy Administrator's office from Code Authority reports.

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PRICES

VI-A Finished Steel (Dollars per gross ton) a/

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
JAN	54.41	52.96	49.82	51.21	49.97	45.52	43.39	43.23	45.43	
FEB	54.03	51.43	50.87	51.21	49.55	45.63	43.14	43.08	45.43	
MAR	54.12	51.56	50.92	51.21	49.62	45.52	43.43	43.08	45.43	
APR	54.23	51.43	50.85	51.90	48.34	45.34	44.13	41.96	45.43	
MAY	53.78	51.43	50.38	51.90	47.58	45.07	44.13	42.04	49.77	
JUN	53.87	51.61	50.09	51.90	47.26	44.98	44.15	44.45	49.39	
JUL	54.10	51.56	49.77	51.90	46.57	45.34	44.26	44.20	48.07	
AUG	54.10	51.56	50.22	51.68	46.19	45.11	44.15	44.31	47.58	
SEP	53.54	51.36	50.22	51.54	45.99	45.11	44.02	44.40	47.58	
OCT	53.74	50.31	50.69	51.07	45.65	45.09	44.13	45.54	47.58	
NOV	53.80	49.64	50.94	50.92	45.58	44.98	43.64	45.14	47.58	
DEC	53.80	49.66	51.09	50.92	45.27	44.31	43.64	45.43	47.58	
Average	54.04	51.21	50.49	51.45	47.30	45.17	43.85	43.91	47.24	

VI-B Pig Iron (Dollars per gross ton) b/

JAN	22.29	20.16	18.37	19.05	19.08	16.94	15.55	14.68	17.94	18.94
FEB	22.31	19.73	18.45	19.07	18.99	16.82	15.36	14.68	17.94	
MAR	22.27	19.79	18.40	19.11	18.77	16.72	15.26	14.68	17.94	
APR	21.53	20.04	18.40	19.25	18.75	16.75	15.20	14.75	18.36	
MAY	21.15	19.89	18.18	19.27	18.66	16.64	15.05	15.45	18.94	
JUN	20.62	19.79	17.97	19.35	18.55	16.40	14.93	16.02	18.94	
JUL	20.23	19.31	17.79	19.27	18.22	16.38	14.85	16.70	18.94	
AUG	20.19	19.00	17.78	19.18	17.99	16.38	14.81	17.16	18.94	
SEP	20.18	18.89	18.04	19.00	17.79	16.32	14.74	17.87	18.94	
OCT	20.39	18.79	18.40	19.03	17.30	16.23	14.73	17.84	18.94	
NOV	20.83	18.42	18.96	19.10	17.14	16.02	14.71	17.84	18.94	
DEC	20.77	18.37	19.06	19.10	17.01	15.86	14.69	17.94	18.94	
Average	21.06	19.35	18.32	19.15	18.19	16.45	14.99	16.30	18.64	

VI-C Heavy Melting Steel Scrap (Dollars per gross ton) a/

JAN	16.97	15.17	13.70	17.02	14.65	11.30	8.41	6.77	11.73	
FEB	15.50	14.58	13.71	16.96	14.92	11.15	8.27	6.83	12.25	
MAR	15.83	14.65	13.65	16.71	14.88	11.10	8.23	6.96	12.82	
APR	15.27	14.71	13.81	17.18	14.30	10.83	8.12	7.73	12.54	
MAY	14.35	13.95	13.90	16.54	13.71	9.94	7.48	9.70	11.57	
JUN	14.40	13.60	13.52	16.39	13.31	9.39	6.89	9.97	10.65	
JUL	15.42	13.48	13.13	16.60	13.08	9.25	6.46	11.27	10.53	
AUG	15.88	13.80	13.75	16.86	13.29	9.25	6.93	12.08	10.15	
SEP	16.25	13.92	14.75	16.60	13.70	9.12	7.69	11.35	9.63	
OCT	15.58	13.48	15.85	15.78	12.77	8.78	7.62	10.56	9.54	
NOV	15.25	13.18	15.97	14.15	11.28	8.61	7.45	9.94	10.04	
DEC	15.08	13.48	15.97	14.15	11.28	8.61	6.92	10.50	11.43	
Average	15.48	14.00	14.29	16.30	13.45	9.79	7.54	9.47	11.07	

a/ Iron Age Composite.

b/ American Metal Market Composite from Survey of Current Business.

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VI. General Information

1. History.

Mass production of iron and steel developed with the era of railroad expansion. The development of the great iron ore deposits in the Lake Superior district shifted the center of iron and steel production to the Pittsburgh district, where coking coal was available, between 1880 and 1900. A further development has taken place in other lake port areas, particularly in the lower Lake Michigan area near Chicago. Recently iron and steel production shows a further shift to automobile manufacturing centers. Relative consumption by railroads has declined while automotive, structural and canning uses have grown. Progress in the use of special alloy steels is notable. Consolidation and integration of steel company operations has continued. The position of the U. S. Steel Corporation has relatively declined with the growth of a number of strong independents. With the growth of integration, numerous small obsolete and isolated blast furnaces operations have been dismantled.

VI. - 2. Description of Operations

The Code for the Iron and Steel Industry defines the "industry" as including the business of producing and selling pig iron, ferro-manganese and spiegeleisen; steel ingots; iron and steel blooms, billets and slabs; all classes of rolled or drawn iron and steel products; and some closely allied products which are processed after rolling or drawing such as wire fencing, nails and tin plate. Castings and the bulk of forgings are not included.

Pig iron production involves the assembly of iron ores and scrap, largely in interstate commerce, and their reduction in a blast furnace with the use of coke as a fuel and limestone as a flux. In 1929, it took 139 million gross tons of these materials to produce 42 million tons of pig iron or almost $3\frac{1}{2}$ tons of materials to 1 ton of output. Approximately 70% of the pig iron, in 1929, was delivered in molten condition to steel furnaces in the same plant.

The pig iron is reduced to steel either by the open hearth furnace or the Bessemer converter. The trend has been toward the open hearth furnace, in which additional amounts of scrap may be added as well as the most important manganese alloys. The molten steel may be run into ingot molds for rolling or, to a relatively minor extent, may be made into direct castings. The hot ingot may be rolled into smaller shapes, such as billets or slabs, for further processing or may be turned by continuous operations into such heavy final products as rails or structural shapes.

The trend has been toward large integrated operations which produce a great variety of finished and semi-finished products. The smaller non-integrated companies buy various semi-finished products which are rolled, drawn, forged or cast into final products. Tin or galvined sheets involve plating with other metals and a great variety of other alloys are used in making special steels.

VI. - (3-4-5-6-) Organizations.

The American Iron and Steel Institute is the major trade association, and has been carrying on extensive statistical work for the past 22 years. Its membership is both company and individual. The Board of Directors was designated as the Code Authority and the Institute acted as the statistical agency to collect Code statistics.

The Secretary of the Code Authority states that there are no organizations of different competitive and regional groups.

The policy of the Industry has been definitely in favor of the open shop. Labor organizations of national scope are of relatively small importance. The Amalgamated Association of Iron, Steel and Tin Workers is the principal union with an active membership of about 6,000, as shown at the last convention of the American Federation of Labor, or only about 1 $\frac{1}{2}$ % of the total number of workers in the Industry.

VI. - 7. Financial Condition of the Industry

A compilation was made by the Research and Planning Division of the net earnings before dividends for 30 iron and steel companies. These 30 companies represented 74% of the code voting strength of the members of Industry based on total annual sales in 1933. Total net earnings were as follows- In Millions of Dollars.

	Five <u>Large Cos.</u>	Twelve <u>Medium Cos.</u>	Thirteen <u>Small Cos.</u>	Total <u>30 Cos.</u>
1929	303	63	13	379
1930	141	31	2	174
1931	5 (d)	6 (d)	3 (d)	14 (d)
1932	123 (d)	21 (d)	5 (d)	149 (d)
1933	63 (d)	2 (d)	0.2 (d)	65 (d)
1934	31 (d)	13	2	16 (d)

(d) = deficit.

The period of Code operation indicates a steady reduction in total deficit with actual net earnings for the smaller company groups in 1934.

VI. - 8. Effect of the Code on the Industry.

Examination of data in the N. R. A. files indicates that

- (a) Average hourly earnings were restored to the 1929 level of 65 cents and even higher in 1935.
- (b) A substantial amount of re-employment due to the observance of a 40 hour week.
- (c) The reduction of total deficits.
- (d) The maintenance of stable prices and their observance as filed.
- (e) The prevention of many failures that would have taken place otherwise (Statement of W. S. Tower, Secretary of the Code Authority)

VI. - 9. Trade Marks.

No definite figures as to percentage of products trade marked is available according to a statement of W. S. Tower, Secretary of the Code Authority, the major products of the Industry are of standard character and are sold on a price and selling service basis. Many small specialties are trade-marked but total volume is comparatively small.

VI. - 10. Effect of Imports.

Imports of iron and steel are relatively small compared with exports. Complaints as to pig iron imports were filed with the Administration and the following N.R.A. release (No. 10941 - April 13, 1935) shows the action taken.

"The National Industrial Recovery Board announced today that the President has directed that no further action be taken at this time on a complaint under the provisions of Section 3(e) of the National Industrial Recovery Act filed by a tariff committee representing the eastern group of merchant pig iron with respect to imports of pig iron. This decision was made after an examination of the complaint and a report by the National Industrial Recovery Board.

"Pig iron is imported into the United States chiefly from the Netherlands and British India. The trend of imports, both in absolute amount and in ratio to domestic production of merchant pig iron, has been generally downward from the second quarter of 1933 before the adoption of the Iron and Steel Code. Furthermore, competition from imports on a price basis was less severe during 1934 than during 1932 and 1933 prior to the depreciation of the dollar."

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VI. - 11. Persons Qualified as Experts.

1. Walter S. Tower - Executive Secretary, American Iron and Steel Institute, 350 Fifth Avenue, New York, New York. Formerly economist for the Bethlehem Steel Company and Professor of Geography, Wharton School of Commerce and Finance.
2. J. V. W. Reynnders, 120 Broadway, New York, New York. Suggested by Deputy Administrator Shannon as a practical engineer familiar with problems of the Industry.
3. Bradley Stoughton, Head of Metallurgical Department of Lehigh University, Bethlehem, Pennsylvania. An eminent authority on general industry problems.
4. R. C. Allen, Lake Superior Iron Ore Association, 3100 East 45th Street Cleveland, Ohio. An authority on the production, ownership and interstate movements of Lake Superior iron ores.
5. C. K. Leith, Department of Geology, University of Wisconsin, Madison, Wisconsin, and Vice-Chairman of the Committee on Mineral Policy appointed by President Roosevelt. An authority on iron ore production and taxation.
6. W. A. Irvin,^{1/} President, United States Steel Corporation, 71 Broadway, New York, New York.
7. Charles M. Schwab,^{1/} Chairman, Bethlehem Steel Corporation, 25 Broadway, New York, New York.
8. E. T. Weir,^{1/} Chairman, National Steel Corporation, Grant Building, Pittsburgh, Pennsylvania.

^{1/} Members of the Board of Directors of the American Iron and Steel Institute which acted as the Code Authority for the Iron and Steel Industry.

